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Demonstration Bulletin

Clor-N-Soil PCB Test Kit L2000 PCB/Chloride Analyzer

Dexsil Corp.

Technological Description: DEXSIL CORP (Environmental Test Kits) The Dexsil Corporation (Dexsil) produces two test kits that detect polychlorinated biphenyls (PCB) in soil: the Dexsil Clor-N-Soil PCB Screening Kit, and the Dexsil L2000 PCB/Chloride Analyzer. The Dexsil Clor-N-Soil PCB Screening Kit extracts PCBs from soil and dissociates the PCBs with a sodium reagent, freeing chloride ions. These ions then react with mercuric ions to form mercuric chloride compound. The extract is then treated with diphenylcarbazone, which reacts with free mercuric ions to form a purple color. The less purple the color, the greater the concentration of PCBs in the extract.

The Dexsil L2000 PCB/Chloride Analyzer also extracts PCBs from soil and dissociates the PCBs with a sodium reagent, freeing chloride ions. The extract is then analyzed with a calibrated chloride-specific electrode. The L2000 instrument then translates the output from the electrode into parts per million (ppm) PCB concentration.

Waste Applicability: These technologies produce analytical results at different data quality levels. The Clor-N-Soil PCB Screening Kit identifies samples above or below a single concentration, which is generally tied to regulatory action levels. The Dexsil L2000 PCB/Chloride Analyzer quantifies specific concentrations of PCBs in a sample over the range of 2 to 2000 ppm. The applicability of these methods depends on the data quality needs of a specific project. Both technologies can be used on site for site characterization or removal action.

The Dexsil Clor-N-Soil PCB Screening Kit and the Dexsil L2000 PCB/Chloride analyzer can detect PCB concentrations in soil, sediment, and transformer oils.

Demonstration Results: These test kits were demonstrated at a PCB-contaminated facility in EPA Region 7. One hundred and forty four soil samples were collected and analyzed on site using the Dexsil test kits. Soil samples were not dried prior to analysis. Split samples were submitted to the offsite formal laboratory for confirmatory analysis by SW-846 Method 8080. Demonstration

data were used to evaluate the accuracy and precision of the test kits, relative to internal quality control samples and to formal laboratory data. This demonstration evaluated costs, ease of use, ruggedness and other operational aspects of the technology.

The sampling and field analyses for this technology demonstration were completed in August 1992.

The L2000 is best suited for use at sites where the Aroclor of concern is known and where interferences are known to be absent. During the demonstration the Clor-N-Soil Test Kit produced 87 correct assays, 58 false positives, and one false negative.

An Innovative Technology Evaluation Report (ITER) describing the complete demonstration will be available in late 1995.

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